

## IR-13 Infrared Flame and Spark Detector

### Explosion Protection System Components

#### Advantages:

- Ultra-fast detection of flames, sparks, and glowing embers, which allows shorter explosion isolation distances.
- Provides reliable detection in applications where pressure detection is slow, such as when ignition occurs close to duct entrance or a weak deflagration occurs inside a vessel.
- Adjustable detector sensitivity to minimize false actuations and to provide operational flexibility.
- Non-intrusive flush-mounted installation does not obstruct material flow.
- Air purge connectors to reduce window contamination
- Remotely installed electronics and temperature resistant light guides allow monitoring of ducts with process temperatures of up to 250° C.
- IP 65 aluminum die-cast enclosure as standard for outstanding dust contamination, water and weather resistance.
- ATEX Approved and CE Marked.



### Application

The IEP Technologies IR-13 flame and spark detector is used for the detection of flames and sparks in closed systems such as ducts, pneumatic transport pipes and conveying lines. The detector has maximum sensitivity at a wavelength of about 830 nm, and is designed to detect flames and sparks with a temperature of approximately 800°C and upwards. The detector is suited for installation in process locations in which it is dark and where there is no incidence of extraneous light. By means of the three light guides installed around the perimeter, the detector can monitor the whole cross-section of the duct/pipe.

## Description

The IR-13 detector consists of three fiber-optic light guides, a photo sensor, and an amplifier. The light guides conduct the infrared radiation, emitted by flames or sparks, to the photo sensor. The detector detects the changes of the infrared radiation and activates an alarm signal.

When flame is detected, the electronics switch to alarm condition. The alarm signal works according to the current amplification principle, i.e., the very low operating current is raised to a higher alarm current by the detector. The central control unit detects this increase of current and interprets it as an alarm.

With the DIP-switch, the detector can be adjusted to various sensitivity levels and applications. The detector can be used for two- and four-wire systems.

Form C, dry-contact relays are provided for signaling both faults and alarm conditions.

In order to avoid buildup of dust and material on the light guides, a clean, dry, oil-free air supply is needed (to be supplied by others).

## Contact Information

For additional information, please contact one of the following locations:

### IEP Technologies

United States: Tel: +1 (855) 793 8407  
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## Specifications

**Operating Voltage:** 18 to 30 VDC

**Operating Current:** 6.5 mA (normal operation),  
50 mA (alarm)

### Alarm Resistance

**Two-Wire System:** 560 Ohm

### End Resistance

**Two-Wire System:** 4.7 kOhm

**Alarm Resistance Three- and Four-Wire System:**  
Standard: 10 kOhm (configurable)

**Response Time Without Relay Outputs** < 1 ms

**Response Time With Relay Outputs** < 4 ms

**Spectral Sensitivity:** Approx. 700 - 1000 nm for  
spark detection from approximately 800°C

**Optional Spectral Sensitivity:** Approx. 1500 -  
2800 nm for spark detection from approximately  
500°C

**Sensitivity:** 100%, 50%, 20%, 10%

**View Angle of Each Light-Guide Arm:** 95°

**Alarm Relay Output (Contact):** 60 VAC/DC

**Fault Relay Output (Contact):** 60 VAC/DC

**Max. Permissible Contact Relay Rating:** 30 W/60  
VA at  $U_{max} = 60V$

**Enclosure Rating:** IP 65

**Approvals:** SNCH 02 ATEX 3365 CE Marked